

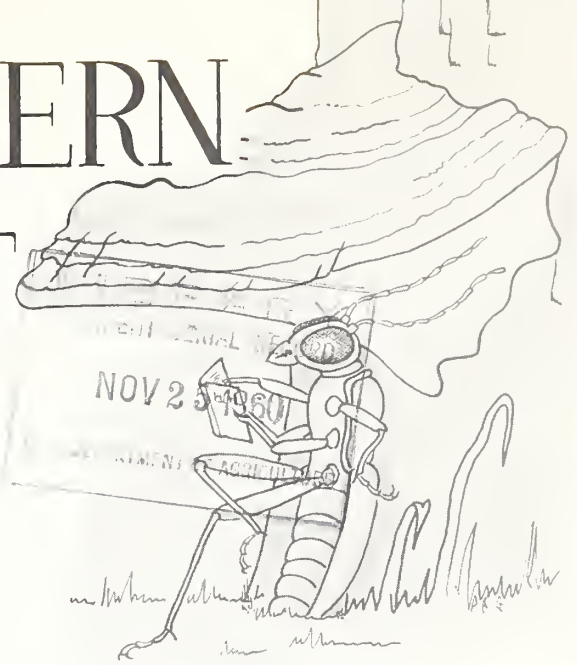
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

4 421
N813
sup 2

NORTHEASTERN FOREST PEST REPORTER

United States Department of Agriculture • Forest Service
Northeastern Forest Experiment Station



No. 3

November 10, 1960

FOREST INSECTS

SPRUCE BUDWORM (*Choristoneura fumiferana*) In the 217,000 acres sprayed in June for control of the budworm, the population was reduced 97.5 percent on the average, and egg deposition was practically nil. Defoliation was severe the past two years in most of this area, but little permanent damage to the fir is expected now. South of the control area a significant block of fir forest comprising about 10,000 acres was defoliated medium-heavy, and egg deposition there was very heavy. Elsewhere south of the control area and eastward to the limit of forest land there were scattered heavy egg deposits. The weather this year was very favorable for larval development and survival. All in all, about 100,000 acres are expected to show appreciable defoliation next year, and control action on a portion of this has been recommended.

WHITE-PINE WEEVIL (*Pissodes strobi*) Terminal injury of white pine remained serious over the entire region. It is reported decidedly increasing in Maine. High incidence of weeviling is reported again this year in New York where 40 to 50 percent of leaders were killed in some plantations.

BALSAM WOOLLY APHID (*Adelges piceae*) There is scattered mortality caused by this pest continuously occurring in Maine, Vermont, and New Hampshire. The infestation encroaches on more balsam firs each year. The release of *Laricobius*, an imported predator of the aphid, in the Penobscot Experimental Forest in Maine has resulted in the establishment of this natural enemy there. This particular predator has effected significant reductions in aphid populations at some spots in New Brunswick.

PINE SHOOT AND TIP MOTHS The European pine shoot moth (*Rhyacionia buoliana*) is abundant in the panhandle counties of West Virginia. The Nantucket pine tip moth (*R. frustrana*) is reportedly light there. Tip moths infested 98 percent of the trees in some 3-year-old soil bank plantings on Maryland's Eastern Shore and also severely damaged seedlings in the same area.

PINE SAWFLIES The red-headed pine sawfly (Neodiprion lecontei) caused considerable damage in New York to red and Scotch pines in Saratoga, Washington, Warren, and Lewis Counties, and heavy defoliation with accompanying mortality on a small (2 acres) red pine plantation in Franklin County. Reports of light and scattered feeding come from all over the State. In Oswego County, where the sawfly hasn't been noticeable for several years, 50 acres required spraying for control. A total of 85 acres in Lewis County was sprayed. This pest was also reported in Monongalia County, West Virginia, Worcester County, Maryland, and locally abundant in Maine.

MISCELLANEOUS INSECTS ON CONIFERS Pine leaf aphid (Pineus pinifoliae) damage is severe in the Penobscot River drainage and eastward to the St. Croix River, and in the upper Kennebec River drainage in Maine. In the upper Connecticut River Valley in both New Hampshire and Vermont, small spots of quite prominent damage are present with mortality of some 10- and 12-inch pines at one location. The aphid was very abundant on the pine twigs, at that location, and galls are numerous on associated red spruce. The white-pine cone beetle (Conophthorus coniperda) is present and destroying cone crops over much of New England. In Vermont there are spots of moderate to heavy infestation near Jericho and Essex Junction.

The balsam fir sawfly (Neodiprion abietis) was reported light but widely distributed in the interior forests of Maine. The European spruce sawfly (Diprion hercyniae) was collected frequently in eastern Maine, and the yellow-headed spruce sawfly (Pikonema alaskensis) was collected more commonly than usual in Maine also. The larch sawfly (Pristiphora erichsonii) was reported in the Saranac Lake district of New York.

The pine needle miner (Exoteleia pinifoliella) was abundant this year in Popham, Maine. The pine looper (Lambdina pellucidaria) appears to be on the increase on Cape Cod, where 400 acres were sprayed in Yarmouth to control it. Pissodes approximatus damage is showing up in many young red pine plantations in the Tug Hill section of New York and in Christmas tree plantings in Pennsylvania. Bagworms (Thyridopteryx ephemeraeformis) have been numerous also, reported especially from West Virginia and Maryland. White-pine tip borer damage (Eucosma gloriola) has been rather severe in Christmas tree plantings in spots over the region, including Pennsylvania.

FOREST TENT CATERPILLAR (Malacosoma disstria) Still generally distributed in the states where outbreaks occurred in 1958 and 1959, this pest has declined markedly in numbers over most of the area. Some locations of heavy feeding still persist, however, notably in south-central Pennsylvania and in Carroll County, Maryland. In West Virginia, the areas which suffered such heavy feeding formerly were scouted--no larvae observed. The eastern tent caterpillar (M. americanum) is still found in large numbers in West Virginia, but egg counts indicate lighter numbers next year; larvae apparently did not reach maturity in the southeastern part of the State. Pennsylvania reported the eastern tent caterpillar widespread but causing generally only light damage.

GYPSY MOTH (Porthetria dispar) A general increase in infested area is indicated over the range of the gypsy moth according to the Plant Pest Control Division, ARS. Aerial surveys during the summer revealed a total of about 50,000 acres of defoliation distributed as follows: Maine -- 6,000 acres in York, Washington, and Hancock Counties; New Hampshire -- 4,500 acres in the Merrimac and Connecticut River valleys; Vermont -- 6,000 acres in Addison and Rutland Counties; Connecticut -- 15,000 acres in New Haven, Middlesex, and northern Litchfield Counties; Massachusetts -- 150 acres on Cape Cod and near Quabbin Reservoir; and New York -- 16,500 acres in the upper Hudson Valley.

In New York about 4,000 acres were in the heavy category (75-100 percent defoliated), although the total area anticipated for control is approximately 50,000 acres. Sevin will be used on the 4,000 acres. In Massachusetts, an estimated 7,500-10,000 acres require treatment next year.

MISCELLANEOUS INSECTS ON HARDWOODS The fall webworm (Hyphantria cunea) has been very much in evidence in the Northeast this summer coincident with its general abundance all over the eastern United States. It was reported very abundant in the southern part of Maine on various hardwoods. Although light in West Virginia, it was reported as more abundant than in 1958 and 1959, mostly in the eastern part of the State. It is scattered in Massachusetts, moderate to heavy locally in Delaware, and light in New York. A thousand acres were sprayed for fall cankerworm (Alsophila pomataria) on Martha's Vineyard, and scattered infestations occurred on Cape Cod. Spring cankerworm (Paleacrita vernata) was reported from central Pennsylvania. Big Burnt Island, comprising 32 acres, in Lake George, New York, was sprayed to control the orange-striped oakworm (Anisota senatoria). The elm leaf beetle (Galerucella xanthomelaena), reported as very severe in spots in central and southern Maine, also severely defoliated trees in numerous localities in Massachusetts. It was reported as noticeable statewide in Pennsylvania.

The oak leaf miners, (Cameraria hamadryadella and C. cincinnatiella), again caused browning of oak leaves in southern New England, but the infestations were very localized. Larvae of the buprestid Brachys sp., which mine oak leaves, were reported abundant in southern Maine. Birches were noticeably browened this summer, more than ordinarily, over Maine and New Hampshire by the birch leaf miner (Fenusa pusilla). The locust leaf miner (Chalepus dorsalis) was in high numbers in some areas of west-central and the mountainous eastern parts of West Virginia. The oak leaf skeletonizer (Bucculatrix ainsliella) was reported in moderate numbers in oak stands throughout Massachusetts and on the Eastern Shore in Maryland. The birch leaf skeletonizer (B. canadensisella) was reported moderately heavy in Nicholas and Greenbrier Counties, West Virginia.

The beech scale (Cryptococcus fagi) was found farther north in New York than ever before -- in Arietta, Hamilton County. The Asiatic oak weevil (Cyrtopistomus castaneus) is now found statewide in Pennsylvania. It has increased markedly in southern and southwestern West Virginia, and was reported in Allegany and Washington Counties, Maryland. The work of the oak twig pruner (Hypermallus villosus) has been in evidence generally over southern New England and in Maine and Pennsylvania.

FOREST DISEASES

The influence of late seasonal weather conditions has been noticeable. A Pennsylvania report states that late summer weather (August and September) produced cool nights and heavy dews favoring foliage diseases, and that leaf spots were abundant especially in northern Pennsylvania. Starting with the last of September and extending to October 20, temperatures were frequently above normal and rainfall deficient. Coastal regions of Connecticut did not have a killing frost until October 21, although frosts occurred earlier in inland areas and in northern parts. The effect on the late fruiting of Fomes annosus generally, has been a reduction in the late season growth of conks, probably due to the prolonged dry weather in the fall.

In general the net result of this year's weather has been low damage for most of the foliage diseases and many rusts. There were exceptions, however. For example, leaf blotch of horsechestnut became increasingly evident with the approach

of fall, and in some areas such as south-central Pennsylvania it was severe. In its worst spots many trees have died from its yearly recurrence. The sudden advent of dry weather in late June and early July, following the lush growth of early spring, caused widespread leaf scorch, principally on sugar maples not in prime condition.

It has been an exceptionally "late" fall. Much of the foliage in West Virginia was still green on October 13. Forests in Pennsylvania were green and foliated on October 4, except in some northern parts and at high elevations. Frosts were later than usual. In New England the fall coloration peak was somewhat extended, but once leaf fall began it was rapid. Oak coloration appeared earlier than usual in Connecticut.

FOLIAGE DISEASES

The anthracnoses.--Early season indications were that anthracnose diseases would be serious. Although widespread, this class of diseases varied in severity, but none or few of them resulted in complete defoliation. Damage has been slight. Sycamore anthracnose was the most common representative. It was widespread in New England, New York, Pennsylvania, Maryland, and West Virginia. Oak anthracnose was reported from all the above states but did little damage. White oak was the species most commonly affected. It was reported on red oak from eastern Massachusetts. Other anthracnoses included those affecting hickory, maple, and ash. Massachusetts reported sizeable areas of sugar maple affected, and Maine reported heavy browning on sugar maple in mature forest stands in the Aroostook area. Maple anthracnose was also reported from Pennsylvania and New York. Ash anthracnose apparently occurred infrequently; it was noted in the New England States and southeastern New York State. Hickory anthracnose occurred in limited localities of Massachusetts. Gloeosporium spp., the imperfect stage of some anthracnoses, was reported from oak, sugar maple, red maple, and Ilex verticillata in Massachusetts, and from Norway maple from southeastern New York.

Leaf spot diseases.--These were represented again by a variety of different fungal causes but were of minor importance. Among the leaf spots reported were: Phyllosticta sp. on sassafras in southern New England, and on Rhododendron in Massachusetts. From Massachusetts also reports were received of Phoma sp. on Magnolia, red oak, and pine; and of a Pestalotia sp. affecting Norway spruce and northern white cedar; also, a species of Entomosporium from Crataegus. Two reports of seldom-recorded leaf spots concerned a tar spot of tulip poplar caused by Ectostroma liriodendri which was common on young trees in western Connecticut and around the Poughkeepsie area of New York.

Powdery mildews increased greatly during the last half of the summer as dry weather prevailed. Some were particularly severe. Those identified included Microsphaera alni from shagbark hickory, sycamore and white oak; Uncinula salicis from black and pussy willow; and, Erysiphe polygoni and Phyllactinia corylea on tulip poplar.

Blights and blotches of leaves and shoots.--Willow scab, caused by Fusicladium saliciperdum, was less prevalent than usual in the Northeast. Fusicladium sp. was reported on willow and on European mountain ash from Massachusetts. Juniper blight (Phomopsis juniperovora) was unusually bad according to a report from West Virginia. A leaf blight of basswood, probably caused by Cercospora microsora, was severe in central and western Massachusetts, particularly on roadside trees. Black sooty mold (Capnodium elongatum) was conspicuous on tulip poplar. Although growing on honeydew secreted by aphids, it was so abundant that leaves yellowed and dropped

prematurely. Horsechestnut leaf blotch (Guignardia aesculi) was lighter than usual, but increased during late season. It was severe in places of annual recurrence, as in south-central Pennsylvania.

RUSTS

White pine blister rust (Cronartium ribicola).--Summary reports of blister rust control activities in 1960 have not yet been received. In general, it appears that rust damage was light to normal. Early season weather was favorable for blister rust development and aecial production was generally widespread and heavy. Later developments were not favorable. In Jefferson County, New York, ribes infection was heavy, but extreme dry weather prevented heavy production of sporidia. Another report stated that weather conditions in northern New York during August and September were not conducive to infection buildup on ribes or pines. Over much of the Northeast blister rust control activities have kept damage to pines at a low level.

Seasonal plans for blister rust control work in New York State were completed, such work generally terminating by September 15, with some continuing through September 30. Considerable progress has been made in zoning the State into rust hazard zones. It is believed that sufficient data will be available in 1961 to evaluate rust hazards on a physiographic basis. Each physiographic area will be given a low, medium, or high rust hazard classification. Areas with a high hazard classification will be given priority on future work plans.

Blister rust of loblolly pine, caused by Cronartium fusiforme, is present in several loblolly pine plantations on the Eastern Shore of Maryland, and is creating some concern to the owners.

Gymnosporangium rusts.--Species noted include G. clavipes, G. globosum, G. clavariaeforme, G. juniperi-virginianae, and G. nidus-avis. That conditions were favorable for telial and sporidial production and sporidial germination is shown by reports and observations -- more reports of these rusts occurring on their deciduous hosts were received than ever before. Abundant infections of deciduous hosts were reported from Maine; Massachusetts reported G. clavipes on Crataegus; and, very heavy apple infections by G. juniperi-virginianae were noted in several Connecticut localities.

Other rusts.--Ash leaf rust (Puccinia sparganioides) occurred widely distributed in the coastal strip of the northeastern states. Reports received were: light--Maine; heavy--New Hampshire to Connecticut; moderate--Massachusetts and Rhode Island; and it was also reported from Maryland. Hemlock rust (Melampsora abietis-canadensis) was reported from Pennsylvania and Maryland. Leaf rust of poplar (Melampsora sp.) occurred in Maryland. Puccinia malvacearum was said to be heavy in one New York locality. Witches' broom of Vaccinium, caused by Pucciniastrum (Calyptospora) goeppertianum, was frequently observed in parts of Massachusetts and New Hampshire. The willow witches' broom, reported in a previous issue of the REPORTER was collected again. It showed new infections of its host and seems to be spreading to other parts of the host tree and other nearby willows. The cause of the witches' broom on willow is unknown. Pine needle rust (Coleosporium asterum) was said to be heavy in plantations in Maine, where its alternate hosts, golden rod and asters, were nearby and prevalent.

NURSERY DISEASES A root rot, particularly in white spruce, remains one of the most serious problems confronting nurserymen in the Northeast, although the problem has not been as severe this past season as previously. The trouble has been noted in Maine and New York nurseries.

Storage mold caused concern at a State nursery at Saratoga Springs, N. Y. No single fungus was isolated with any degree of regularity from affected red pine,

Norway and white spruce seedlings. Because of the mold, plans are to greatly reduce the number of seedlings placed in storage this fall. A chlorotic condition in which white and red pine are stunted and yellowed in scattered spots in the seed beds occurs at this nursery also. Affected plants show lesions common from the ground line to the middle of the third season's growth in 3-0 seedlings. Both bacteria and various fungi were isolated from the cankered seedlings, and numerous molds and other fungi occurred in seriously crowded beds containing these affected areas. It is believed that the various fungi associated with storage molds and in the overcrowded beds are favored by the high density maintained in the beds.

Telephora terrestris was abundant in nursery beds of southern New England nurseries, probably as a response to the generally moist season. This fungus is reputed to cause a "smothering disease" of seedlings in nurseries. Research indicates this fungus may form mycorrhizal associations with conifer seedlings which may far outweigh its liability in causing occasional mortality.

PLANTATION DISEASES Needle cast diseases were the major diseases reported on plantations, the most serious being Rhabdocline pseudotsugae and Adelopus gäumanni. Both occur on Douglas-fir which has been extensively planted in the Northeast and which brings a favorable price on the Christmas tree market. One or both diseases are strongly entrenched in plantations from Maine to Pennsylvania. Control by spraying has not been satisfactory, although work is being done with antibiotic fungicides. Numerous instances have been noted of trees resistant to Rhabdocline, and to a lesser degree to Adelopus. A single strain resistant to both diseases is needed. Other needle casts reported include Lophodermium sp. on white pine in Massachusetts and Rhizosphaera kalkhoffii on spruce is said to be prevalent around Elkins and Beverly in West Virginia.

Plantation troubles of undetermined cause occurred in widely scattered localities. Vermont reported needle browning, drop, and twig mortality affecting a red spruce Christmas tree plantation; also approximately 2 acres of white pine in Mendon which died from no apparent cause. Specimens received at the New Haven Forest Disease Laboratory on which no associated fungi could be found were white spruce from New York State, showing loss of needles and an overall chlorosis; and spruce specimens from Maryland associated with loss of needles and a dieback condition. Caliciopsis pinea was found on western white pine (Pinus monticola) in plantations at Oneonta and Olmstedville, N. Y. This may be the first time the organism has been reported on P. monticola, according to Dr. S. Silverborg of Syracuse University. The fungus was also noted on limber pine (P. flexilis) at the Olmstedville planting.

WILTS Oak wilt (Ceratocystis fagacearum) is about the same as last year in West Virginia, but additional trees were found. The annual report on oak wilt in West Virginia is expected to be ready about December 1. Maryland says oak wilt was again present in Allegany and Washington Counties. The following report of oak wilt in Pennsylvania has been taken from a preliminary report by Mr. Arthur Jeffery, which includes a summary of the culture isolations made by Mr. W. L. Yount, both employed by the Bureau of Plant Industry, Harrisburg, Pa. A more complete report of the oak wilt activities in Pennsylvania is expected later. Aerial survey for the disease began June 16 and was completed August 30. Diseased areas were in the same general areas of infection found in previous years. Heavy infections were located in the south-central counties, scattered in western counties. None was found in the northern part of the State or in areas east of the Susquehanna River. Infections were located in 14 counties. Areas treated totalled 347; 58 were single infections; 192 were group infections; and 97 were retreatments. In addition, 781 dying trees and 1,008 dead trees were found. As part of the program, 6,816 trees were cut; approximately half of which were over 4" DBH, the remainder being classified as brush. In

many instances field personnel did not sample suspected trees as field symptoms, evidence of old mats, or other factors made sampling unnecessary. During 1960, 311 trees were cultured with the following results:

	<u>Positive</u>	<u>Negative</u>
Red oak	210	53
Black oak	15	3
Chestnut oak	8	5
White oak	5	5
Scarlet oak	2	0
Pin oak	0	1
Laurel oak	0	1
Scrub oak	0	1
Turkey oak	0	1
Species unknown	1	0
	<u>241</u>	<u>70</u>

Of the areas treated in 1960 a relatively high percentage were of recent origin. Among the areas treated where breakovers occurred, oak wilt in 56 areas was within 50 feet of the previously diseased stump, and within 100 feet of the previously diseased stumps in 23 other areas. This indicated negligence in treating all oaks within the prescribed 50-foot barrier zone. Other evidence indicated that breakovers rarely occurred more than 6 years after areas were treated.

Dutch elm disease (Ceratocystis ulmi).--This disease is so widely evident throughout the Northeast that it frequently is not mentioned in reports sent in for the PEST REPORTER. Whether it is becoming more or less of a problem is difficult to ascertain. Apparently its severity is about the same as last year. Some of the most recent reports are: Maine--Infections found in 46 additional towns this year. It has been found in all Counties except Sagadahoc and Washington and is now in 146 municipalities within the State. Massachusetts--Incidence of the disease is about the same as last year. Most localities can do little more than keep up with tree removal as the trees show symptoms and die. Little time or money is available for a positive attack on the disease by clearing the municipalities of all bark-beetle breeding material. Maryland--Still severe on shade trees. West Virginia--Killing trees in most areas of the State. Previous reports indicated it as severe in southeastern New York, and it had been reported as "very conspicuous" in northern New Jersey and northeastern Pennsylvania at midseason.

Verticillium wilt (V. albo-atrum) seemed more abundant than usual. Very serious Verticillium wilt was observed in the towns of Bloomsburg and Berwick, Pa. Both towns have a large number of Norway maples. Many are dead, dying, and large percentages of affected trees contained flags of wilt-killed branches. The disease was also reported on Norway maples in Syracuse, N. Y. and northern Maryland; and on maples in East Leverett, West Springfield, and South Hadley, Mass. In New Hampshire sapsucker damaged yellow birch trees were noted and many fungi isolated from the wood beneath the wounds. Verticillium was isolated from the top of a recently killed, bird-injured tree.

Other wilts include mimosa wilt which was responsible for the removal of a dozen trees in the Salisbury area in Maryland. A Cephalosporium sp. and Dothiorella sp. were reported on white oak in Massachusetts and from a catalpa in Maryland, respectively. These reports did not mention wilt associated with these organisms, although both genera have species which sometimes cause wilt in other hosts.

ROTS The past season has not been a particularly favorable one for fruiting of heart-rotting fungi. Many annual fruiting species that were abundant last year were observed in reduced numbers this year. One example is Steccherinum septentrionale, common on sugar maples. Newly-formed conks of the perennial forms seemed less

numerous than usual. Heart rots are claimed to be the most common problem in West Virginia forests. In a rot study at Laconia, N. H., approximately 200 sprout stems of red maple were dissected by the Station Pathologist. The sprouts ranged from 30 to 60 years of age, from 3 to 13 inches in diameter, and came from 51 clumps. More species of Fungi Imperfecti than Basidiomycetes have been isolated.

Among the root rots, Armillaria mellea and Fomes annosus were common, abundant, and serious. On spots infected by Fomes annosus in Connecticut and New Hampshire, A. mellea rhizomorphs many feet long were observed ramifying through the duff layer and numerous branches from these rhizomorphs made contact with nearby roots and stumps on which F. annosus was fruiting. A. mellea infections of trees killed or weakened by F. annosus are very common. A. mellea does not seem to fruit very frequently under these conditions. A. mellea was reported from a number of hardwood hosts in Massachusetts.

Additional reports of Fomes annosus continue to accumulate. New reports were received from all northeastern states with the exception of New Jersey and Delaware. The fungus was found fruiting on Douglas-fir stumps and on a small, dead hemlock in south-central Pennsylvania. The former is probably a new host record for the State. F. annosus was reported and verified in thinned loblolly pine plantations on the Pocomoke State Forest near Salisbury, Md. This is believed the first instance the disease has been reported on the lower Eastern Shore section of Maryland. An infection of white pine in the Clover Run plantation in West Virginia has been previously reported. No additional instances of the disease have been found in day-by-day activities of the West Virginia workers, but some survey activities for the disease are planned for November.

CANKERS A bad outbreak of Cytospora canker on Norway spruce was noted in the Kennebec Water District near Waterville, Me. The disease seemed particularly bad where bedrock shelves approached the surface. Other less serious outbreaks in the State involved an infection near Winslow and in spruce plantations in the University of Maine forest near Orono. Reports of Cytospora canker included four different locations in Massachusetts, and a number of other places in New England and New York.

Nectria cankers.--Nectria cinnabarina has been identified on dead branches of 10- to 15-foot sweet birch on the Allegheny National Forest in Pennsylvania. The problem seems confined to heavily cut areas. It is believed that winter injury from extreme cold and snow and ice damage is associated with the infections noted. Laboratory investigations at Laconia, N. H., on the physiology of Nectria coccinea var. faginata, indicates that light intensity is an important factor for sporulation. The fungus does not sporulate when attacked by Gonatorrhodiella highlei, a parasite of Nectria, when the two are grown in mixed cultures. The degree of parasitism of G. highlei greatly depends on the micro-element concentration in the medium in which the fungi are grown.

Reports of Septobasidium pinicola on white pine have caused quite a bit of speculation on its relation to the decline of pines. The fungus is not a canker-producing organism, but necrotic spots seem to be associated with it. The fungus is reputed to be a symbiont, or parasite, on scale insects, and over 100 species of the genus have been described. The fungus is abundant in southwestern New Hampshire; on white pine near White Sulphur Springs, W. Va.; from a number of other places including Massachusetts, New York, Vermont, and Maine. In Maine it is found on dying white pines in the Wiscasset and Freeport areas, where the "white pine decline" has been noted in previous issues of the PEST REPORTER. Many necrotic lesions are on these declining pines and S. pinicola is abundant on nearly all of these trees. The wood beneath large fungus patches is dry, discolored, and brittle. Just what the relation of the fungus and insect have to the decline and death of these trees is problematical. There is some doubt whether the fungus is S. pinicola, a closely related species, or an undescribed species.

Hymenochaete agglutinans has been observed frequently this season. It was found to be prolific and girdling alder, hemlock, and maple undergrowth in a Norway spruce plantation near Waterville, Me. Numerous cankers (not Hymenochaete) are found associated with the ash dieback disease, but at present these cankers are thought to be secondary.

Dr. Frank L. Howard, University of Rhode Island, reports the discovery of a pathogen of potential seriousness to pines in this country. The fungus is Naemospora strobi, reported to be a serious pathogen of five-needle pines in Europe. As yet there appears to be no previous record of the fungus in United States. Specimens have been submitted to the Plant Disease Survey office at Beltsville, Md. for confirmation. The fungus occurred on Swiss stone pine (Pinus cembra), a tree from which commercial nurserymen had taken cuttings for propagation.

False blister rust cankers.--In the Watertown-Lowville area of New York there are many cankers on white pine that closely resemble cankers of blister rust. The cause of these cankers is unknown.

DIEBACKS Reports of diebacks and tree decline have been numerous. They were received from all sections and involved maples, ash, oak, hickory, hemlock, birch, and beech. The first three species mentioned have given the greatest concern.

Maple dieback and decline.--New York--"Property owners throughout New York State show increased anxiety over the decline of sugar maple... General over the district, but no large number of trees infected in any one area... A tree here and there in woodlands; many noted along highways." Pennsylvania--"Low vigor in maples in the central area and the northern tier of counties cause concern and comment. Loss of foliage surface through leaf spots and insect feeders certainly caused part of the trouble, but other factors probably are involved." Maine--"Continues very common with no one cause involved. Verticillium, bleeding canker, and Steganosporium have been found in some dying maples. Trees involved are ornamentals or roadside trees. Bleeding canker also found in some beech forest plots." New Hampshire--"Roadside maples and other species show effects of salt (?) and drought, 'roadside disease,' etc. Often limited to lower side of road where run-off occurs, with no injury on the opposite (high) side." [This report also states that they believe too much emphasis has been placed on "bleeding canker"]. The prominence of leaf scorch this season, a part of the maple decline syndrome, is believed partly due to the sudden advent of hot, dry, weather following the lush, tender early spring growth of foliage.

Ash dieback.--New York, "Reports of an increase in ash dieback in the Hudson Valley continue; a 5-acre stand of ash in Hamilton County is rapidly dying; ash dieback more noticeable in Jefferson than in Lewis and Oswego Counties." It has also been observed in western Connecticut, central and western Massachusetts, southern New Hampshire, northeastern Pennsylvania, northern New Jersey, and in a few other isolated places. At present, the majority of dead or seriously affected trees are scattered along roadsides and hedgerows, or are isolated trees in exposed situations, although more and more woodlot trees are showing signs of poor vigor and dieback. Fortunately, in few areas has ash dieback become serious enough in woodlands to necessitate salvage operations.

Oak dieback and decline.--Oak troubles generally have been more severe south of New York State, in contrast to ash dieback which is causing most concern in New York and the New England States. In 1958 there was quite a lot of spot-killing of oak following the severe 1957 drought. Such areas were usually associated with shallow soils over rock ledges and outcrops, or on exposed areas of slopes and ridges. In many instances, repeated insect defoliation, soil depth, and moisture, seem related to oak troubles. Other than oak wilt, oak troubles seem most severe in southern New York and the north-central area of Pennsylvania; in parts of the mountainous region

of western Maryland and certain areas in West Virginia; and on the coastal plain areas of New Jersey, Delaware, and Maryland. The latest trouble area for oak decline and mortality is southern New Jersey.

MISCELLANEOUS AND NONPARASITIC TROUBLES

Multiple leaders in conifers.--Multiple leaders have been noted in scattered plantings and natural stands in all New England States, central New Jersey, and as far west as western Pennsylvania and New York. A wide variety of species are inflicted with multiple leaders, including white, red, and ponderosa pine; white and Norway spruce; balsam and Douglas-fir. No definite cause seems responsible and several diversified reasons have been suggested (see previous issues of the PEST REPORTER for further details). In some local areas the multiple leader condition is much more prevalent than weevil injury. Recent comments are: Maine--"Pine areas (white pine) known to have had common bud-plucking by grosbeaks last winter produced multiple leaders, various amounts of shoot growth, and usually produced needles only on the tip of the 1960 shoot." New Hampshire--"Forking noted in many areas of southern New Hampshire and Maine." Vermont--"New growth on forked trees showing strong tendency to grow out of the deformity well, especially on better sites. Perhaps damage will appear less serious as growth progresses."

Three areas in Maine are now known where hemlock is dying; Alfred, Sanford, and Wiscasset. All trees have the typical stem lesions with strips of callus and living tissue as reported earlier. Another Maine report tells of browning foliage and bark cracking on fir branches. It was commonly observed in three areas of the State. Mechanical bending from heavy winter snow deposits is believed to be the cause.

A New Jersey report tells of some effects from hurricane "Donna." Appreciable damage to trees occurred in eastern Maryland, Delaware, and New Jersey. "Shade trees suffered far more than forest-grown trees, but scattered forest trees were broken or, in small pockets on wet sites, were uprooted. On the Eastern Shore some loblolly pines 6 to 8 feet tall were not uprooted but were left leaning. Such leaning is not nearly so noticeable among natural seedlings of similar size." A Rhode Island report of the after-effects of the hurricane states that heavy salt spray damage along the coast has resulted in needle kill and early defoliation.

* * * * *

A recent publication of interest:

Miller, Orson K., Jr. 1960. The distribution of Fomes annosus (Fr.) Karst. in New Hampshire red pine plantations and some observations on its biology. Bul. No. 12, Caroline A. Fox Research and Demonstration Forest, Hillsboro, N. H. 25 pp., illus. (Published by the New Hampshire Forestry and Recreation Commission, Concord, N. H.) Price 25 cents.